

SPRAY DRIED RED BLOOD CELLS IMPACT ON WET AND DRY PET FOOD COLOR AND TEXTURE

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BACKGROUND INFORMATION

Natural colorant demand is increasing in the pet food industry leading to evaluations for alternative natural ingredients to impact color while maintaining product quality. Spray dried red blood cells (RBC; AP 301) are a natural ingredient high in protein and digestibility [1] that may impart a meaty color in both wet and dry pet food. The objective was to evaluate the level of RBC in wet pet food on color and texture and dry kibble color, and product characteristics.

STUDY OBJECTIVE

Study objectives were to evaluate various levels of RBC on wet pet food and dry kibble color.

EXPERIMENTAL PROCEDURE

Two studies were conducted in paté wet pet food using various levels of RBC. Study 1 utilized 0%, 0.5%, 1%, and 2% RBC while study 2 utilized 0%, 0.25%, 0.5%, 1%, 2% and 3% RBC with or without liver in the formula. To evaluate color, paté were formulated with main ingredients impacting potential color. These ingredients included chicken MDM, chicken carcass, chicken liver (study 2 only), wheat flour, animal plasma, salt, sodium tripolyphosphate and water. The RBC partially replaced chicken carcass from 0.25% to 3% while holding all other ingredients constant. Batches of wet pet food were replicated 3 times with different raw materials sources. Thus, 3 batches per study and level were produced. Paté emulsions were produced and viscosity was measured before canning and cooking at 121°C for 1 hour. Cans were stored at room temperature for 10 days prior to product measurements. Cans (4/condition/batch) were evaluated for color, solids, protein, and texture. Texture was measured on a TA.XT Plus, while color was measured using a HunterLab colorimeter. For dry pet food, three extruded kibble formulas were formulated to meet or exceed AAFCO [2] for adult dogs and were manufactured with 0%, 2.5%, and 5% RBC replacing chicken meal. Processing conditions were monitored during extrusion to produce a quality kibble along with kibble outcome measurements such as solids, protein, color, and durability. Data were analyzed using PROC GLM procedure of SAS, with significance set at P < 0.05.

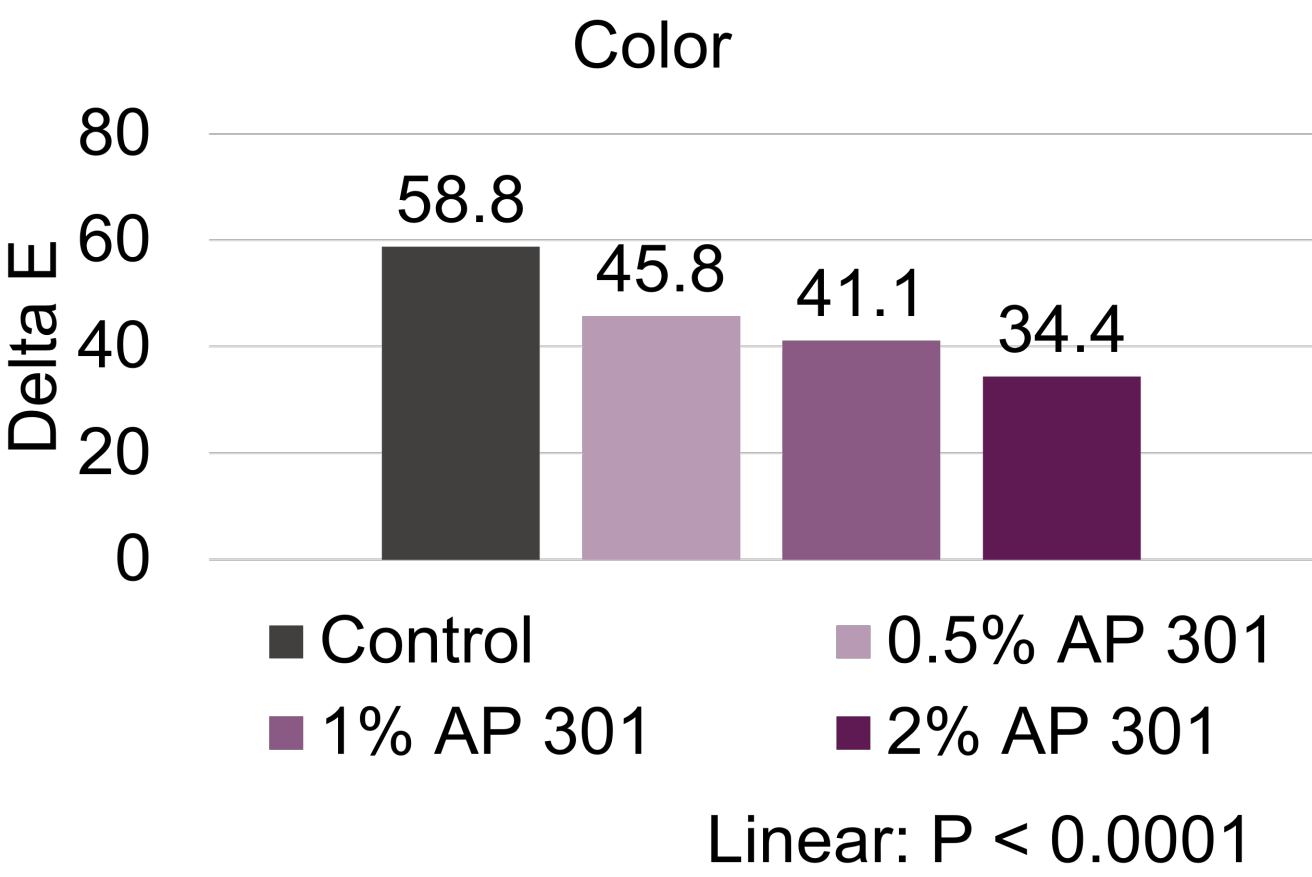
SUMMARY

RBC can be utilized as an ingredient in wet pet food and dry kibble to impact color. Inclusion of RBC increased solids, protein and texture in wet petfood; while no differences were noted in dry kibble. Thus, depending on the pet food manufactures goal, RBC would be an alternative natural protein ingredient to impact the desired color for product development.

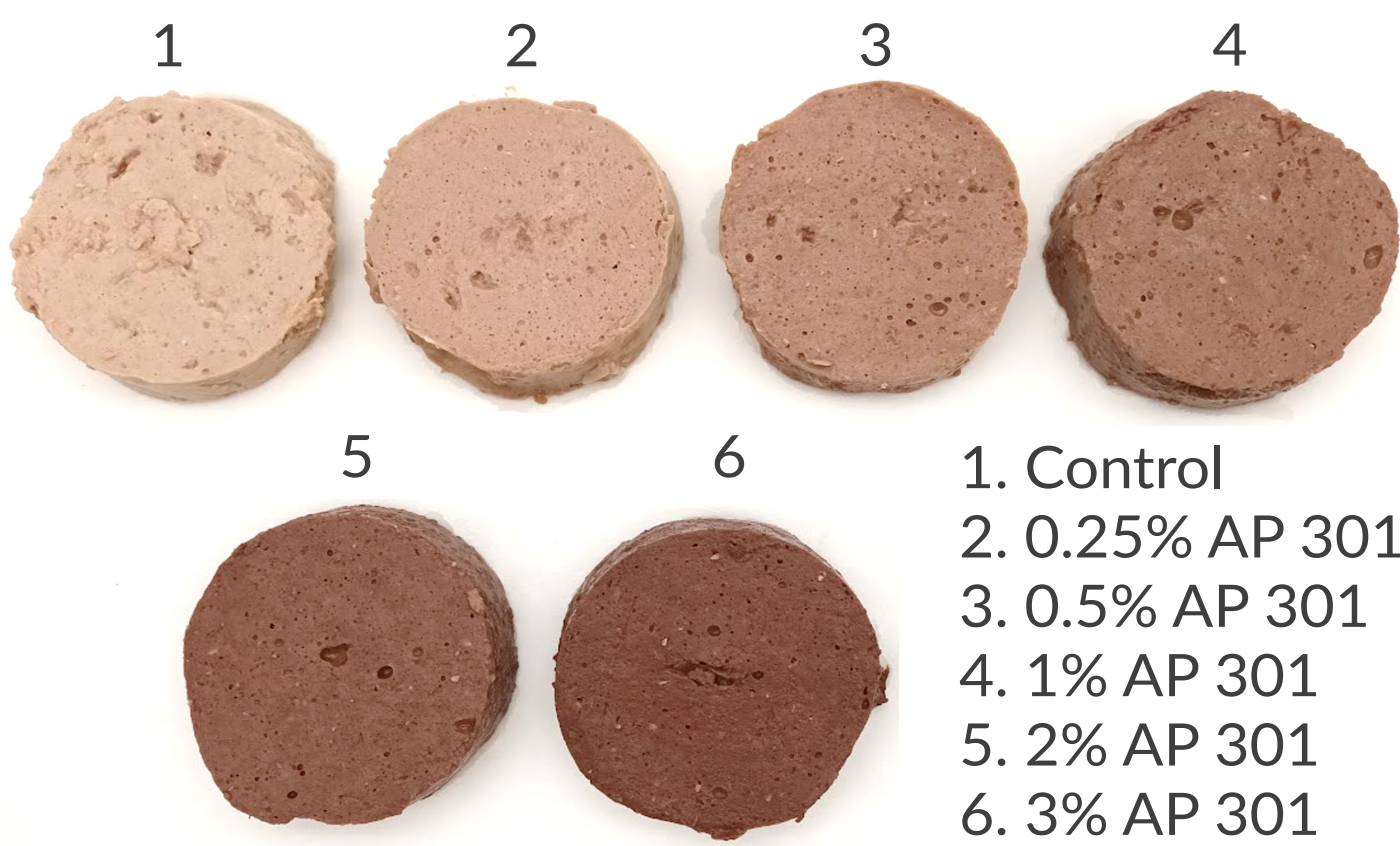
REFERENCES

[1] Almeida et al. (2013) Anim. Feed Sci. Tech. 181:80-86.
[2] Association of American Feed Control Officials (AAFCO) (2024).

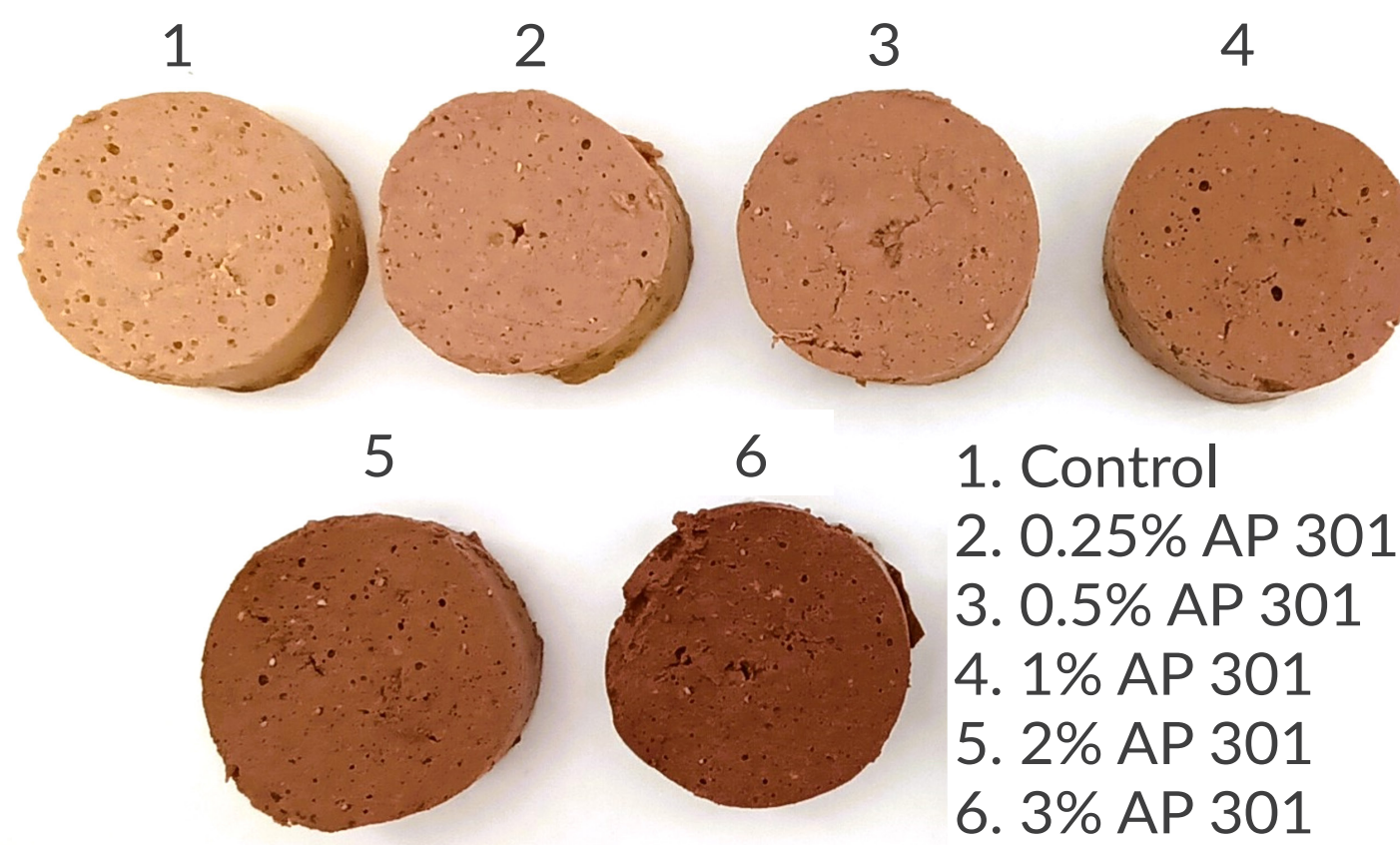
STUDY ONE RESULTS: WET PET FOOD



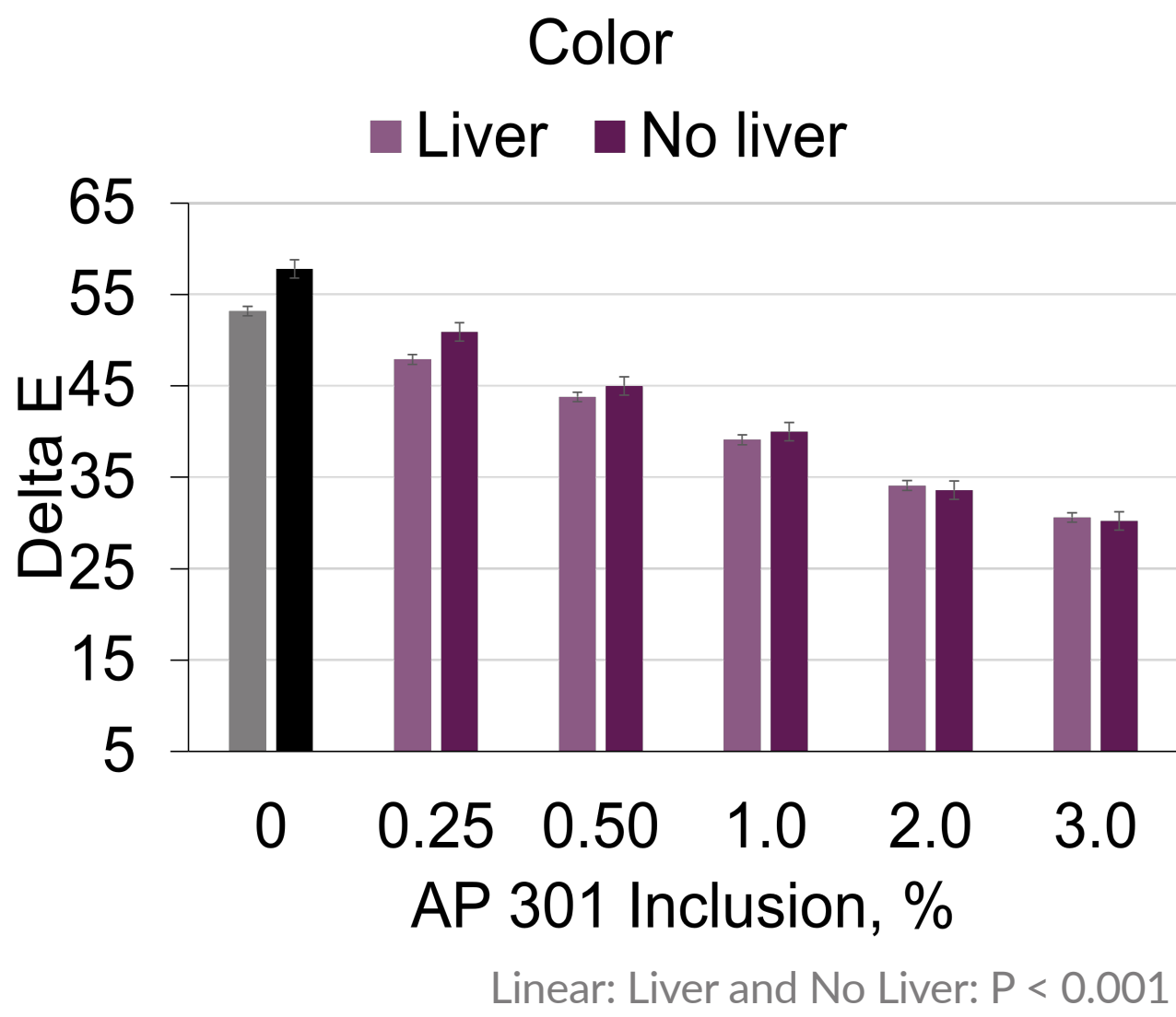
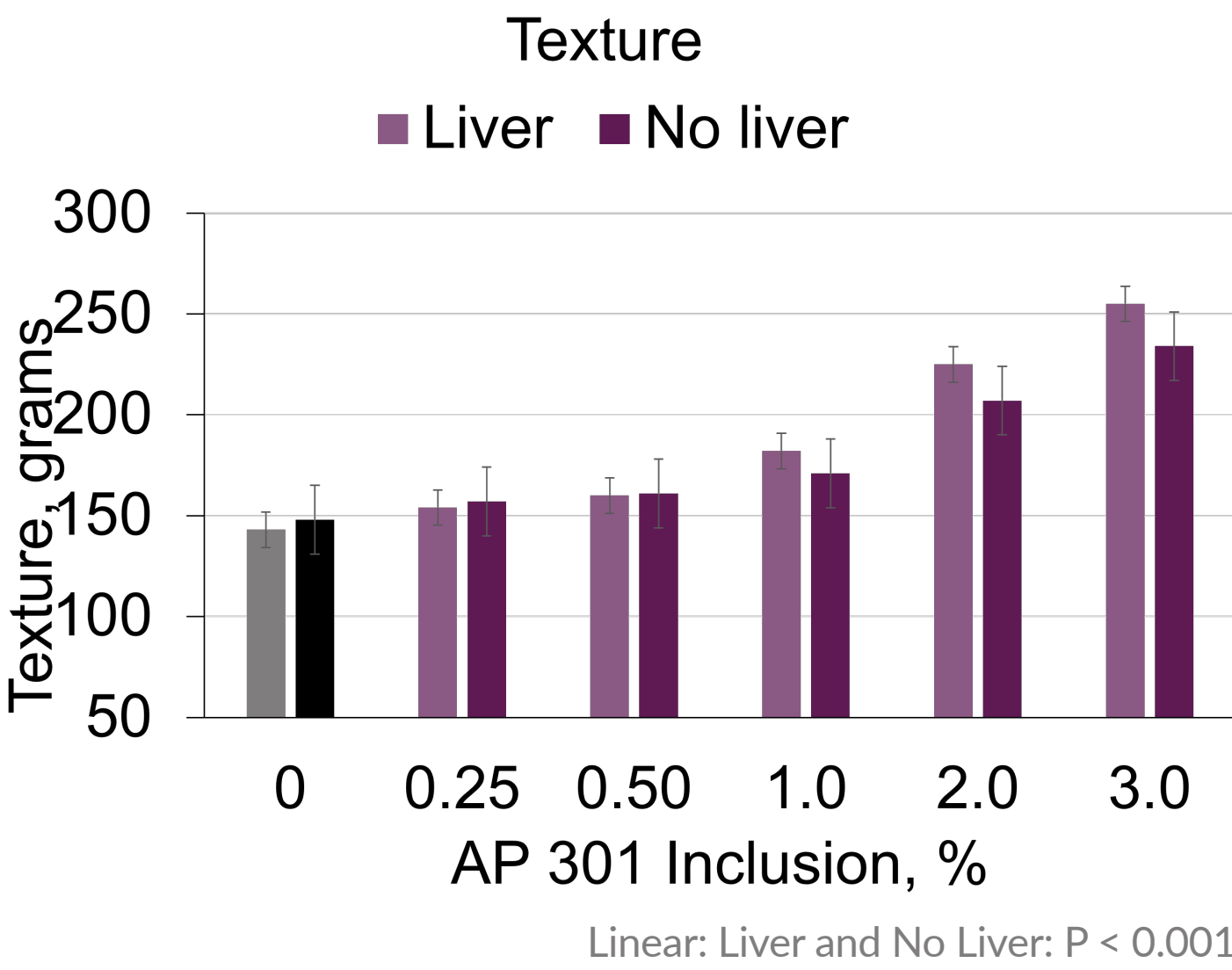
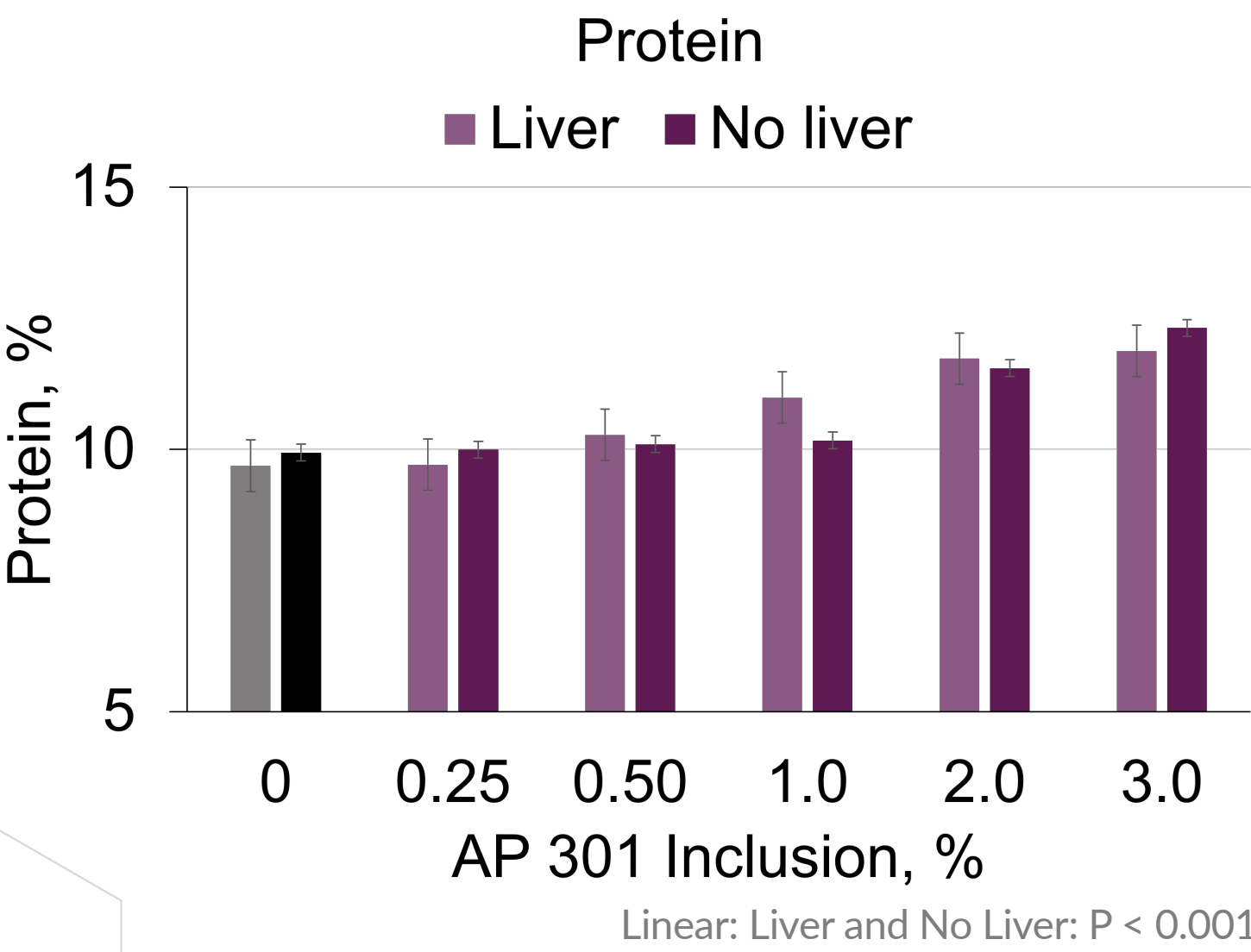
RESULTS: WET PET FOOD, NO LIVER



RESULTS: WET PET FOOD, WITH LIVER



STUDY TWO RESULTS: WITH OR WITHOUT LIVER



RESULTS: KIBBLE

